**Amendments to the Specification**

Please replace the paragraph beginning at page 10, line 10 with the following rewritten paragraph:

--Fig. 5 shows the mounting geometry for optical reflective photonic probe **60'** into the projector film gate **25**. Also shown are projector primary light source **12**, projector shutter **15**, projector gate film aperture **26**, film perforations **21** and the projector gate film clamp **22**. The probe to projector gate mounting arrangement also includes a probe to film gate clamp adapter base **66** directly coupled to the projector gate film clamp **22**. It also includes a micrometer base **64** with a z-axis micrometer **62** installed in it attached to the probe to film gate clamp adapter base **66** for controlling the z-axis distance of the reflective photonic probe **60'** tip from the surface of the motion picture film **20**. The probe to film gate clamp adapter base **66** also includes a y-axis micrometer **65** and a x-axis micrometer **67**.--

Please replace the paragraph beginning at page 10, line 21 with the following rewritten paragraph:

--Also shown in the bottom right of Fig. 5 is the coordinate system. The z-axis micrometer is used when performing a distance calibration on the reflective photonic probe **60'**. The x-axis and y-axis micrometers **67** and **65** are used to map out a distribution of the film motion over the surface of the projector gate aperture **26** during testing. In addition, the signal from the projector primary light source photodetector **83** can be used to map the projector primary light source's **12** flux density distribution on the motion picture film **20** over the area of the projector gate film aperture **26**. This data can be utilized to adjust the primary light source housing and primary light source reflector position so as to provide uniform illumination throughout the projector gate film aperture **26**. In order to load the motion picture film **20** into the projector film gate **25** the projector gate film clamp **22** tension is released, the film **20** is inserted into guides between the projector gate film clamp **22** and the projector film gate **25** and the tension to the projector gate film clamp **22** is reapplied. –

Please replace the paragraph beginning on page 11, line 10 with the following rewritten paragraph:

The reflective photonic probe **60'** shown in Figs. 3 and 4 are reflectivity compensated fiber optic probes. They include a pair of detection fiber bundles **71** and **72** with different effective center-to-center distances from the input fiber bundle **74**. The reflective photonic probe **60'** was designed to provide a monotonically increasing ratio signal as a function of distance from the probe surface with a linear range in excess of 1 mm. In an example probe design, the active probe tip facing the projector gate, has a 0.125" outer diameter (OD). There is a 90-degree bend in the probe with about a 0.70" radius to facilitate right angle mounting into the probe clamp **64**. The active probe tip consists of a center fiber bundle **61** with a 46-mil outer diameter surrounded by an outer ring of fibers **63** with a 91-mil diameter. Individual fibers in the fiber bundles are 3.5-mil in diameter with a numerical aperture (NA) of 0.25. The central fiber bundle is randomized and is coupled to two branch tips at the distal end of the fiber probe. One of these branch tips includes input fiber **74** and is coupled to and used for collecting light from measurement light source **70** preferably a laser light source. The second branch tip is coupled to detection fiber **71**, which then passes through narrow bandpass filter **90** and into photodetector **81**. The outer ring of fibers **63** is coupled to detection fiber **72**, which then passes through narrow bandpass filter **90** and into photodetector **82**. The active fiber bundle diameters for input fiber **74** and the distal end of detection fiber **71** are 32 mils and the active fiber bundle diameter at the distal end of detection fiber **72** is 81 mils.

Please replace the paragraph beginning on page 11, line 31 with the following rewritten paragraph:

--Fig. 6 shows the measured photodetector responses of the inner fiber-optic bundle **61** labeled Probe 2, and outer fiber-optic bundle **63** labeled Probe 1 along with the calculated scaled ratio of the two signals as a function of distance from the motion picture film. The data in the calibration curve is obtained as follows. Using the z-axis micrometer **62** the tip of reflective photonic probe **60'** is first brought into contact with film **20** in the projector gate. The probe voltages for the two channels are recorded and converted to digital signal levels using the data acquisition and computer system **100**. The probe position is then incremented by a known amount (typically in 50 μm steps) and data is recorded using the data acquisition and computer system **100** and stored in a

sequential table of probe voltages as a function of distance. This process is continued until the farthest distance data desired is obtained. The scaled ratio as a function of probe tip distance from the film is then calculated by calculating the ratio of the two probe signals at each measured distance and multiplying them by a constant scaling factor. The scaled ratio data is also displayed in Fig. 6. –

Please replace the paragraph beginning on page 15, line 29 with the following rewritten paragraph:

--Referring to Fig. 10, a high-speed video camera **92** can be placed at a 10-30° angle from the film plane of the motion picture film **20** to detect the location of the tip of the optical probe and the apparent location of the probe reflection as shown in Fig. 10. When utilizing the high-speed video camera **92** an external light source **94** is utilized to illuminate the probe tip of reflective photonic probe **60'** and the motion picture film **20** in the projector gate film aperture opening **26**. If the motion picture film **20** is partially reflective then a virtual image of the photonic probe **60'** will occur in the image produced by the high-speed video camera **92**. In general, the reflective photonic probe's tip ~~**60**~~ will be located a distance z from the surface of the motion picture film **20** and the virtual image **60**$^{\mathbf{r}}$ will be located a distance z' from the surface of the motion picture film **20**. The two distances z and z' are equal in magnitude, and the distance from the tip of the reflective photonic probe **60'** to the surface of the motion picture film **20** is calculated to be (z+z')/2. --